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THE INSECT PEST SURVEY
BULLETIN

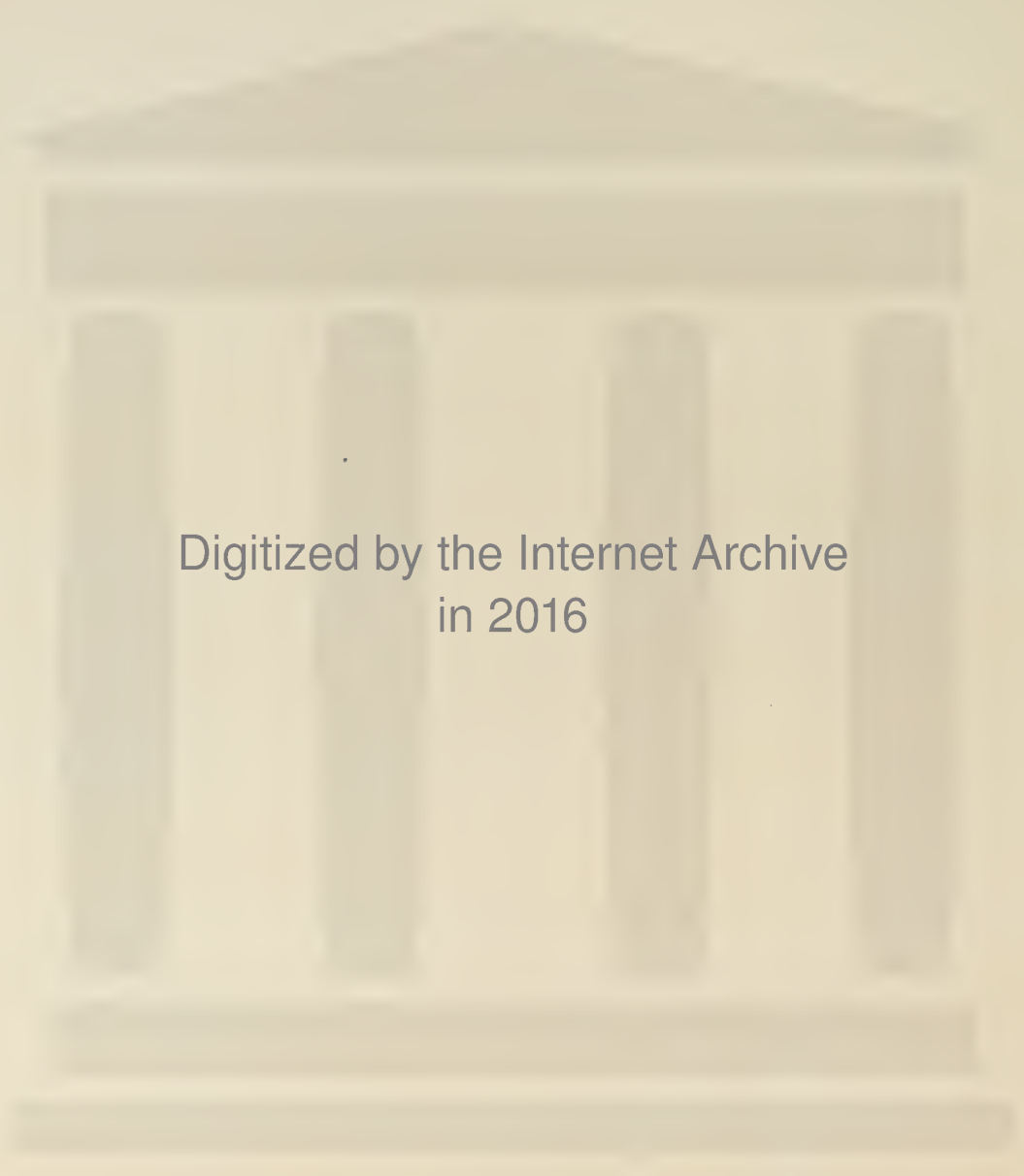
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Volume 21

Supplement to No. 9

November 8, 1941

BUREAU OF
ENTOMOLOGY AND PLANT QUARANTINE
UNITED STATES
DEPARTMENT OF AGRICULTURE
AND
THE STATE ENTOMOLOGICAL
AGENCIES COOPERATING



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INSECT PEST SURVEY BULLETIN

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REMEMBER PEARL HARBOR

RECORDS ON DISTRIBUTION OF THE POTATO TUBER WORM (GNORIMOSCHEMA OPERCULELLA ZELL.) IN THE UNITED STATES

The following is a tabulation of the data available to the Bureau of Entomology and Plant Quarantine on the known occurrence of the potato tuber worm in the United States up to December 1, 1941. These data constitute a compilation of the records on file at this time and do not necessarily indicate the areas where this insect is known to be established.

ALABAMA

- Cullman, 1939: Reported on potato at Cullman, 9-13-39. Insect Pest Survey 19: 499, 1939. (J. M. Robinson.)
- We have no additional records. (J. M. Robinson Oct. 7, 1941.)
- Found at Cullman in 1939 in potatoes shipped from Hastings, Fla. We have never had any reports of damage to growing potatoes. (B. P. Livingston, Oct. 7, 1941.)

ARIZONA

- Phoenix, 1898: Specimens (3 adult) in the U. S. Museum, March 7, 1898.
- Tempe ----- Specimens (1 adult), rustica leaf miner in the U. S. Museum. (K. McKinney.)
- Neither Dr. L. P. Wehrle nor I have any records of the insect in Arizona. (C. T. Vorhies, Oct. 10, 1941.)
- O. C. Bartlett, in his list of Arizona Plant Pests, under date of Oct. 24, 1927, reports this insect. (J. L. E. Lauderdale, Sept. 29, 1941.)

ARIZONA - (Continued)

Prescott, 1941: H. G. Johnston, extension entomologist, informed me that he took specimens near Prescott, in Yavapai County, this year. (J. L. E. Lauderdale, Sept. 29, 1941.)

----- ----- The pest is apparently of no economic importance in the State, as we have not had any complaints. Almost all of our potatoes are grown in the colder areas of the State. (J. L. E. Lauderdale, Sept. 29, 1941.)

ARKANSAS

----- ----- Has not been found in Arkansas so far as anyone in the Department of Entomology, University of Arkansas, knows. (W.J. Baerg, Sept. 23, 1941.)

----- ----- The Plant Board does not have any records. (P. H. Miller, Sept. 22, 1941.)

CALIFORNIA

General, 1856: A permanent pest in California. It was recorded in the literature as early as 1856 and has been reported frequently to the present time, especially during the last several years.

General ----- Recorded from the following counties: Alameda, Contra Costa, Eldorado, Kern, Los Angeles, Modoc, Monterey, Napa, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sonoma, Stanislaus, Ventura, Yolo.

Kern ----- Very abundant throughout the large Kern County potato County: areas, and annual losses are greater than from any other insect. (W. B. Harns, Oct. 9, 1941.)

----- ----- A survey of the five potato-growing districts in Humboldt County was made in 1941 and no specimens found. Not believed to be present in Siskiyou County. (D. B. Mackie, Sept. 23, 1941.)

COLORADO

Colorado given as distribution. U. S. Dept. Agr. Year Book 1898. (L. O. Howard.)

Fort Collins Specimens from. U. S. Farmers' Bul. 557. 1913. (F. H. Chittenden.)

Greeley, 1913: Correspondent sent specimens from Greeley, Sept. 27, 1913, with statement that "these worms bore into the skin and cause the potato to be worm tracked." (Det. by F. H. Chittenden.)

COLORADO -- (Continued)

Otero, ----- U. S. Dept. Agr. Bul. 427, 1917, by J. E. Graf:
County: Otero County mapped as a place of establishment
on potato.

Rocky Ford: --- Proc. U. S. Natl. Mus. 53: 199, 1917. Parasite
reared.

----- Has been introduced in potatoes shipped from
infested areas, but so far as we know, has not
gained a foothold. (C. E. Jones, Oct. 20, 1941.)

Olathe, 1941: I am reporting a pick-up of the insect in one
shed on California Mesa, northwest of Olathe, and
in one wholesale house at Olathe during the spring
of 1941. Every potato district in the State was
surveyed during the spring of 1941 with negative
results, with exception of the two named cases. I
am informed that infested potatoes from the California
Mesa were received at State College. (F. H. Gates,
Nov. 13, 1941.)

CONNECTICUT

The insect has not been found to the best of our
knowledge. (R. B. Friend, Sept. 30, 1941.)

DELAWARE

Newark, 1931: Specimens taken from stored potatoes at College Farm,
Agr. Expt. Sta., Newark. Moths emerged April 14-18,
1931. (Determined by A. Dusck.) Insect Pest Survey
Bul. 11: 205, 1931. (L. A. Stearns.)

----- No report since the note in the Insect Pest Survey
Bulletin report in 1931. (L. A. Stearns, Sept. 18,
1941.)

----- 1941: Specimens of infested potatoes received from Dover,
where they had been stored. (L. A. Stearns, Oct. 8,
1941.) Insect Pest Survey Bul., 21: 642, 1941.

----- I have had
opportunity to investigate the infestation at Dover.
The reporter told me that he had observed no damage
in his potato patch, which is within the city limits.
Infestation apparently limited to potatoes in the
cellar. He states that he purchased some southern-
grown potatoes 5 years ago at a roadside market in
this State and since that time potatoes stored in
his cellar have become infested. (L. A. Stearns, Nov.
7, 1941.)

FLORIDA

- Gainesville, 1898: One moth specimen in U. S. Natl. Museum. Tobacco leaf miner, 8-20-1898.
- Lake Alfred, 1929: Adult specimens in U. S. Natl. Museum, potato, April 20 to May 4, 1929. (L. J. Bottimer.)
- Lake City: ---- On tobacco at Lake City; on eggplant in De Soto County and tomato in the State. Fla. Bul. 48: 178, 1898.
- Gadsden County, 1906: On tobacco. U. S. Dept. Agr. Bul. 67: 110, 1907.
- Dade City: ---- Infestation on tobacco from 1906 to 1910. U. S. Dept. Agr. Bul. 59, 1914.
- Brooksville, 1909: Correspondent sent specimens to Bureau with statement that the insect damaged tobacco this season. (Det. by F. H. Chittenden.)
- Quincy, 1913: Specimens (moth) in the U. S. Natl. Museum, tobacco leaf miner, August 27, 1913. (S. E. Crumb.)
- Duval, Gadsden, Pasco, De Soto, Dade, Lake, and Columbia Counties: --- Duval County mapped as place of establishment on potato; and Gadsden, Pasco, De Soto, Dade, Lake, and Columbia Counties on other food plants. U. S. D. A. Bul. 427: 1917. (J. E. Graf.)
- Greenville, 1924: Slight damage in fields of bright leaf tobacco in May. Insect Pest Survey Bulletin 4: 88, 1924. (F. S. Chamberlin.)
- Lake Worth) 1931: Very abundant on potato in storage at Kissimmee and Lake Worth. Insect Pest Survey Bul. 11: 369, 1931. (E. W. Berger and G. D. Merrill, July 1931.)
Kissimmee)
- Fort Myers, 1931: Sent in from Fort Myers, where it was doing considerable damage to potatoes in storage. Insect Pest Survey Bul. 11: 369, 1931. (J. R. Watson.)
- Raiford)
Jacksonville) 1932: Shipment of potatoes from Raiford received and held at Jacksonville, where infestation was discovered. Potatoes evidently infested when received. Insect Pest Survey Bul. 12: 62, 1932. (C. F. Stahl.)

FLORIDA -- (Continued)

Osceola, Polk,
Orange, Seminole,
and Manatee Coun-
ties: -----

Investigations carried on in 1937, with living larvae from material sent to the State Plant Board taxonomist, G. B. Merrill, by inspectors working in Osceola, Polk, Orange, and Seminole Counties, and from material brought by J. R. Watson from Manatee County. Fla. Ent. 20: 33, 1937.

Fort Myers, 1939:

Field infestation. (A. C. Brown, Sept. 1941.)

Quincy, 1921-41:

Reported to the Insect Pest Survey from tobacco in Quincy almost every year for the last 20 years, 1921-41. (F. S. Chamberlin, 1941.)

General

1929
to
1940

Following reports submitted by A. C. Brown, September 24, 1941, as being taken from the records in file at the Fla. Agr. Expt. Sta.; at Sebring, 1929, in stored potato; at Kissimmee, 1930, stored potato; at Lake Worth, 1931, in stored potato; De Land, 1933, on potato; Montverde, Dania, and Bunnell, 1934, on stored potato; Waldl and Winter Haven, 1935, stored potato; Kissimmee and Bartow, 1937, on stored potato; Arcadia and Bunnell, 1938, on stored potato; Belle Glade, 1939, on stored potato; Fort Myers, 1939, infestation in potatoes running over grading belt; Miami, 1940, in stored potato.

Fort Myers, 1941:

Infestation in old fields and in old potatoes in packing houses. (A. C. Brown, 9-24-41.)

GEORGIA

I am fairly familiar with this insect and have looked for it but have not seen it; no complete survey has been made. (T. O'Neill, Feb. 2, 1931.)

Norman Park, 1935:

One infestation of the splitworm on tobacco observed this season at Norman Park. Insect Pest Survey Bul. 15: 253, 1935. (F. S. Chamberlin.)

Fitzgerald, 1941:

Specimens collected in tobacco at Fitzgerald, July 24. (Det. by U. S. Natl. Mus.) (M. Murphy.)

I have no records of this insect in Georgia, although I have never searched for it. (T. L. Bissell, Sept. 19, 1941.)

IDAHO

We have not been able to find this insect.
(W. E. Shull, Sept. 23, 1941.)

We have no record. (J. Andrasen, Sept. 22,
1941.)

ILLINOIS

Worden, 1930:

Sent to us in a cooked potato in September.
The only record in Illinois during the last
5 years. (W. P. Flint, Nov. 1930.)

The above-cited record is the only one we
have received and we have made several efforts
to check on its occurrence. (W. P. Flint,
Sept. 20, 1941.)

INDIANA

Pleasant Lake, 1917:

Correspondent sent specimens to Bureau with
statement that it was found in this year's
potatoes, October 6, 1917. (Det. by F. H.
Chittenden.)

New Haven)
Fort Wayne) 1930:

Infested potatoes received from Fort Wayne,
shipped there from Virginia. Home-grown
potatoes purchased near New Haven had the
same infestation. Insect Pest Survey Bul.
10: 381, 1930. (J. J. Davis.)

The above record is the only one for Indiana.
(J. J. Davis, 1941.)

IOWA

Iowa City)
Sioux City) 1918:

Three adult specimens from Iowa City. G. G.
Ainslie. (No food or date.) Sixteen adult
specimens from Sioux City, C. W. Ainslie.
(No food or date.)

Ames -----

One adult specimen in U. S. Museum, Ames,
August 23, 1918, A. W. Lindsey. (No food
plant.)

Des Moines,
Nevada, Ames, 1933:

Found in every potato patch examined in
vicinities of Des Moines, Nevada, and Ames,
July 27, 1933. Insect Pest Survey Bul. 13:
203, 1933. (C. J. Drake.) (Det. by C.
Heinrich.)

----- 1933:

Specimens taken from various points in eastern
half of State, June 12, 1933. Jour. Econ. Ent.
26: 1,173, 1933. (H. D. Tate.)

IOWA - (Continued)

Greene and
Story Counties, 1934:

Found in potato patches in Greene and Story Counties, August 2, 1934. Although established in State for several years, it has not been observed to do any commercial damage. Insect Pest Survey Bul. 14: 226, 1934. (C. J. Drake.)

Davenport, Council
Bluff, Osage,
Saint Ansgar, 1934:

Specimens taken in potatoes at Davenport during the latter part of July; in potatoes at Council Bluff and in the vicinities of Osage and Saint Ansgar during the first week in August. (C. J. Drake, 1941.)

Ames) 1935, 1936,
Des Moines) and 1937

We found it in potatoes in Ames and Des Moines in 1935, 1936, and 1937. (C. J. Drake, 1941.)

This year we looked for the insect working as a leaf miner in Ames, but failed to find it. We have never found it breeding in the tubers. Although potatoes at Ames were exposed late in July and in August to obtain specimens, none were found. (C. J. Drake, 1941.)

KANSAS

Ford County: -----

On map, indicated as introduced but not established. No reference to food plant. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

No record of infestation of potato or tobacco growing in Kansas. On June 7, 1940, a carload of new potatoes, shipped from California to Salina, Kans., was seriously infested with larvae. We refused to permit the potatoes to be delivered or sold within the State. (G. A. Dean, 1941.)

No specimens in our collection that were taken in the State. (H. B. Hungerford, 1941.)

KENTUCKY

Owensboro,
Utica,
Lexington,
Bremen, 1931:

Specimens taken from tobacco received from Owensboro, Utica, Lexington, and Bremen. First appearance of pest in State. Insect Pest Survey Bul. 11: 297, 1931. (W. A. Price.)

Daviess,
Fayette,
Henderson
Counties: -----

Clipping, Courier Jour. June 25, 1931. Discovered in several tobacco-growing sections of the State, including Daviess, Fayette, and Henderson Counties.

KENTUCKY - (Continued)

| | | |
|---|------|---|
| Daviess, Fayette, Henderson, and Muhlenberg Counties: | 1931 | Insect found on tobacco in Daviess, Fayette, Henderson, and Muhlenberg Counties in 1931. Very little damage done at that time, and insect not observed on tobacco or potato since. (W. A. Price, 1941.) |
|---|------|---|

LOUISIANA

| | |
|--|--|
| Florence, 1913: | Correspondent sent specimens from potato to the Bureau and asked for remedy. (Det. by F. H. Chittenden.) |
| Cameron and Vermilion Parishes, 1917: | Cameron Parish mapped as permanent establishment on food not named; Vermilion Parish mapped as permanent establishment on potato. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.) |
| Saint Benedict, 1938: | Collected at Saint Benedict, 8-28-38. Insect Pest Survey Bul. 18: 544, 1938. (C. O. Eddy.) (Det. by A. Busck.) |
| Saint James, Saint John the Baptist, Terre- bonne, Lafourche, and Iberville Parishes, 1941: | A rather general survey conducted in 1941 over the State as a whole, more intensive work being done in the commercial potato-producing sections. Following infestations recorded: Six infested properties in Saint James Parish; 3 in Saint John the Baptist Parish; 58 in Terrebonne Parish; 54 in Lafourche Parish; and 1 in Iberville Parish. (W. E. Anderson, 1941.) |

MAINE

| | | |
|-------|-------|---|
| ----- | ----- | Hancock County mapped as introduced without establishment; no reference to food plant. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.) |
| ----- | ----- | We have never found a specimen in the State. (S. L. Painter, 1941.) |
| ----- | ----- | Accession records and inquiries by other members of the Department show no record of occurrence in Maine. (F. H. Lathrop, 1941.) |

MARYLAND

| | | |
|---|-------|---|
| District of Columbia | ----- | The insect has been found as far north as the District of Columbia on eggplant and ground-cherry. U. S. Farmers' Bul. 557, 1913. |
| Howard, Montgomery, and Prince Georges Counties District of Columbia | ----- | Mapped as permanently established on plants other than potato in the District of Columbia, part of Montgomery County, almost covering Howard County, and in some of Prince Georges County. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.) |

MARYLAND -- (Continued)

Pocomoke, 1923:

Larvae found in storage and in field. (E. N. Cory, Dec. 20, 1923.)

General -----

Since 1923 it has been recorded repeatedly in the literature and in reports to the Insect Pest Survey. Reports have been received from the following counties: Baltimore, Calvert, Caroline, Cecil, Frederick, Prince Georges, Queen Annes, Saint Marys, Somerset, Talbot, Wicomico, and Worcester.

No outbreak since 1930. Of no commercial consequence in the State, except under unusually favorable weather conditions. No infestation in potatoes seen in 1941. Marketable leaves of tobacco never attacked. Survey of fields in June showed no infestation in Worcester County. (E. N. Cory, 1941.)

MASSACHUSETTS

Mapped as introduced but not established; no food reference. Dot seems to be over Boston. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Presence of insect never noted in the State, either through personal observation or by report. Similar report from field station at Waltham. (A. I. Bourne, 1930.)

Inquiries over the State, including the field station at Waltham and H. J. Franklin at East Wareham, indicate no record in Massachusetts. Typical injury found in imported seed potatoes in Hampden County about 10 years ago, but no specimens present. (A. I. Bourne, 1941.)

MICHIGAN

During late August 1932, specimens were sent from a potato dealer at Owosso; potatoes found to have been shipped from Virginia. Mich. Quar. Bul. 15: 70, 1932. (R. H. Pettit.)

The above record is the only one of occurrence in Michigan. (R. Hutson, 1941.)

To my knowledge, specimens have never been found in Michigan, only on shipped-in stock. (C. A. Boyer, 1941.)

MINNESOTA

Saint Paul,
Minneapolis, 1940:

Found in potatoes stored in warm cellars in two localities about 15 or 20 miles apart in the vicinity of Saint Paul and Minneapolis. First actually determined in 1940 while examining tubers for pit scab. Subsequent examination of several commercial potato cellars gave negative results. Insect Pest Survey Bul. 21: 99, 1941. (A. A. Granovsky, April 15, 1941.)

Found only on University Farm property.
(A. G. Ruggles, 1941.)

MISSISSIPPI

Gulfport, 1913:

Correspondent sent specimens to Bureau and asked for remedy, November 11, 1913. (Det. by F. H. Chittenden.)

Harrison County, 1940: Specimens, apparently this species, sent with statement that potatoes were destroyed in storage on farm in September. (C. Lyle.)

Hancock County, 1940: Specimens found on September 26, 1940, in Hancock County on a few potatoes held over from the spring crop. (C. Lyle, 1941.)

Harrison County, 1941: Specimens received from three farms. Insect Pest Survey Bul. 21: 587, 1941. (C. Lyle.)

Found on August 30, 1941, on one farm in Harrison County, and subsequently on two other farms. Considered of minor importance on potatoes in this section. (C. Lyle, 1941.)

MISSOURI

Platte County, 1929:

Found on tobacco. (F. W. Poos.)

This office has no authentic record of this insect on either potato or tobacco. (L. Haseman, 1941.)

No record of this insect in Missouri. (J. A. Denning, 1941.)

MONTANA

Lewis and Clark County mapped as place of introduction but no establishment. (No reference to food plant.) U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

No records at Bozeman of this insect having been taken in the State. (H. B. Mills, 1941.)

MONTANA - (Continued)

Insect intercepted on shipments of potatoes into Montana, principally from California, but no record of its being intercepted in local potatoes. (G. L. Knight, 1941.)

NEBRASKA

Cass County, 1939:

Found to have severely injured about 125 bushels of potatoes in Cass County, September 28, 1939. First record of this pest for the State. Insect Pest Survey Bul. 19: 563, 1939. (M. H. Swenk.)

Cass County, 1939:

Not found in Nebraska until 1939, when it was reported as ruining the potato crop in Cass County. Evidently introduced in seed from out of the State. Nebr. State Bd. Agr. Rpt., 1940: 445. (O. S. Bare.)

Lincoln, 1940:

Specimens collected from potatoes near Lincoln, producing more or less characteristic damage, August 31, 1940. Insect Pest Survey Bul. 20: 452, 1940. (H. D. Tate.) (Det. by C. Heinrich.)

Elmwood)
Lincoln)

Two infestations in the State, one at Elmwood in 1939 and one near Lincoln in 1940. Survey in location near Lincoln in 1941 showed no specimens nor injury. No commercial damage found in 1940 nor in 1941 during surveys in western Nebraska. (H. D. Tate and L. M. Gates, 1941.)

NEVADA

No records of field or storage infestations in the State. (G. G. Schweis, 1941.) No information on distribution of the insect. (S. B. Doten.)

NEW HAMPSHIRE

No record of the insect ever having been taken, either in potato or tobacco, in New Hampshire. No recent search has been made. (J. G. Conklin, 1941.)

NEW JERSEY

Insect found on potatoes coming into New Jersey from the Eastern Shore of Virginia and Maryland, but no infestations in New Jersey. N. J. State Agr. Bul. 16: 154, 1931. (H. B. Weiss.)

Insect not established in New Jersey to my knowledge. Intercepted in 1924 and in 1930 in seed potatoes from Maryland and Virginia. Surveys reveal no infestations in New Jersey. (H. B. Weiss, 1941.)

NEW JERSEY - (Continued)

Accession records as far back as 1910 indicate no record of occurrence in New Jersey. (B. B. Pepper, 1941.)

NEW MEXICO

Inspections at harvest and in storage show no infestations in the State. (J. R. Eyer, 1941.) So far as I know, this insect does not occur in the State. (R. F. Crawford, 1941.)

NEW YORK

New York

Specimens received from New York City, on potato; not acclimatized, so far as is known. U. S. Farmers' Bul. 557, 1913. (F. H. Chittenden.)

Mapped as introduced into New York City, but not established; no reference to food plant. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Rochester, 1937:

Outbreak discovered in a potato storage in Rochester in 1937. Outbreak eradicated. No location known where this insect is established. (A. B. Buchholz, 1941.)

Inquiries in several counties indicate no infestations. (W. A. Rawlins, 1941.)

NORTH CAROLINA

Kinston

Specimens in the U. S. Natl. Museum, one from tobacco at Kinston, no date. (G. A. Runner.)

Raleigh, 1896:

Specimens from tobacco at Raleigh, June 27, 1896 and August 5, 1896. (T. Pergande.)

A native moth, feeding on Solanum carolinense and tobacco in parts of North Carolina by leaf mining. N. C. Bul. 141: 133, 1897. (G. McCarthy.)

Beaufort, Bertie,
Camden, Currituck,
Franklin, Gran-
ville, Halifax,
Northampton,
Pasquotank, Vance,
Warren, and
Washington Coun-
ties:

Intensive survey of northern and eastern parts of State in fall of 1926 to determine presence or absence of insect. Found in small numbers in several counties. Observed breeding on potato, tobacco, and wild hosts. Not a pest of serious proportions, except under favorable weather conditions. Intercepted frequently on shipments into the State. N. C. Dept. Agr. Bien. Rpt. 1925-26: 52-53. (R. W. Leiby.)

NORTH CAROLINA - (Continued)

- Craven County, 1930: Heavily infested potatoes sent in from Craven County, September 25, 1930. Insect Pest Survey Bul. 10: 381, 1930. (C. H. Brannon.)
- Kinston, 1932: Infested potatoes sent in with statement that it was very destructive last year, March 9, 1933. Insect Pest Survey Bul. 13: 83, 1933. (C. H. Brannon.)
- Pasquotank County, 1935: Infested potatoes sent in from Pasquotank County, October 16, 1935. (C. H. Brannon.)
- Oxford, 1937: Light damage to tobacco by this insect, which first appeared on June 14, 1937. Insect Pest Survey Bul. 17: 247, 1937. (J. U. Gilmore.)
- Beaufort, Found on tobacco at Raleigh and Kinston; found
Carteret, breeding in potato in Beaufort and Carteret Coun-
Lenoir and ties. W. C. Dept. Agr. Div. Ent., Insects of
Wake Counties: ----- W. C., 303, 1938. (C. S. Brinley.)
- Gaston County, 1938: Reported as attacking potatoes and doing serious damage, September 30, 1938. (Z. P. Metcalf.)
- Greenville ----- In addition to the counties already cited in 1926, this insect has been found at Greenville, in Pitt County. (C. S. Brinley, 1941.) Not a pest of potatoes in the State as the market crop is harvested before the tubers are affected; there are no late potatoes in part of State where it is known to occur. (C. S. Brinley, 1941.)
- Nash, Edgecombe, --- Irregularly of minor importance to tobacco in
Wilson, Wayne, counties of Caswell, Person, Granville, and Vance,
Johnston, Harnett, and in the coastal plains area. Observed in the
Cumberland, and past in eastern Wake County, and in Franklin,
Robeson Counties: ---- Nash, Edgecombe, Wilson, Wayne, Johnston, Harnett,
Cumberland, and Robeson Counties. In my experience,
never a serious pest on potato, but noticed in
Currituck, Camden, Beaufort, Craven, and Pamlico
Counties. (Z. P. Metcalf, 1941.)

NORTH DAKOTA

- Specimens in potato at Larimore, August 8, 1912,
intercepted in shipment from California. U. S.
Farmers' Bul. 557, 1913. (F. H. Chittenden.)
- Chittenden's record is the only one I know of;
no subsequent report, and intensive potato-insect
research in the last few years has not revealed
its presence. (H. S. Telford, 1941.)

OHIO

Shelby, 1915:

Specimens received from Shelby, April 17, 1915. We have been almost sure of its presence in Ohio before, but this is the first definite instance. Ohio Hort. Soc. Rpt. 49, 1916. (H. A. Gossard.)

Columbus, 1931:

A few larvae nearly full grown and empty mines in potato leaves found in field at Columbus, June 29, 1931. (F. W. Poos.) (Det. by A. Busck.)

Our records show but three authentic references to this insect in Ohio, the one from Shelby in 1915 not making clear whether the infested potatoes were home grown. The other two instances were interceptions in shipments from out of the State. (J. S. Houser, 1941.)

OKLAHOMA

Museum records show no report of occurrence in Oklahoma. (F. A. Fenton, 1941.)

OREGON

Eugene, 1914:

Correspondent sent specimens and asked for remedy, December 7, 1914. (Det. by F. H. Chittenden.)

Prairie City, 1915:

Correspondent sent specimens and asked for remedy, October 11, 1915. (Det. by F. H. Chittenden.)

Specimens sent without comment, April 1926. (D. C. Mote.) (Det. by A. Busck.)

No record or information of further occurrences, and no infestation known at present. (F. McKennon, 1941.)

Specimens taken in 1936 were intercepted at Portland in ship's stores. No infestation in Oregon to my knowledge. (D. C. Mote, 1941.)

PENNSYLVANIA

Oak Station, 1919:

Adult specimen in U. S. Natl. Museum, Oak Station, May 15, 1919. (F. Marloff.)

Lehigh County
Shippensburg

In 1925 an infestation was found in a shipment of potatoes into Lehigh County. Origin of potatoes not known. During latter part of summer of 1930 potatoes containing heavy infestation were found near Shippensburg. These potatoes originated in Baltimore, Md. (H. E. Hodgkiss.)

PENNSYLVANIA - (Continued)

----- Surveys show that this insect is not established in the field, although several interceptions from Maryland and Virginia have been made. (T. L. Guyton, 1941.)

----- Other than the infestations in 1925 and 1930 which were eradicated, there are no records of infestation in the State. (H. E. Hodgkiss, 1941.)

RHODE ISLAND

----- We have never had any reports on this insect in the State. (A. E. Stene, 1930.)

Wakefield, 1936: Only record I have is from our card file, of larva in potato tuber at Wakefield, January 1936. (C. C. Jennings, 1941.) (Det. by A. Busck.)

SOUTH CAROLINA

Sandy Run, 1898: Did more damage to tobacco than all other insects combined in the neighborhood of Sandy Run, Lexington County, in 1898. U. S. Dept. Agr. Yearbook, 1898. (L. O. Howard.)

----- Listed as occurring in the State. U. S. Dept. Agr. Bul. 59, 1914.

Charleston, 1941: This spring I found that potatoes left in the field over night were infested later in the season. (J. A. Berley, 1941.) (Det. by J. F. G. Clarke.)

General, 1940: In the truck section of the State, the insects spread from a house where some mummied potatoes left from previous year were stored. Found in 1940. (W. C. Nettles, 6-26-41.)

SOUTH DAKOTA

Elk Point, 1913 and 1918: Specimens in U. S. Natl. Museum, August 1913 and August 1918. (C. M. Ainslie.)

Sioux Falls) ----- Our records show that the insect was taken in Watertown) Watertown) and Sioux Falls some years ago. (H. C. Severin, 9-30-41.)

----- We have communicated with the county agents of these counties, also with the county agent of Hamlin County, and they have no records of the insect in their counties. (H. C. Severin, Sept. 30, 1941.)

TENNESSEE

Clarksville, 1913: Specimens in U. S. Natl. Museum of larvae and pupae from potato at Clarksville, Aug. 18, 1913. Also adults taken from Physalis, Solanum carolinense, tobacco, and potato, in Clarksville, July 5 to October 15, 1913. (S. E. Crumb.)

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Attacking tobacco at Clarksville. Leaf-mining Insects, 1928, p. 158. (Needham, Frost, and Tothill.)

Clarksville, 1931: Attacking tobacco at Clarksville. More abundant than in average year. Insect Pest Survey Bul. 11: 548, 1931. (J. U. Gilmore and J. Milam.)

Lawrence County, 1938: Reported in Lawrence County on potato, September 26, 1938. (G. M. Bentley.)

Robertson County -----
In the summer of 1939 I had the opportunity of meeting six outstanding tobacco growers of Robertson County. They said that the tobacco splitworm had been in the county several years, but damage was small. (G. M. Bentley, 1941.)

TEXAS

Fredericksburg, 1891 In letter dated September 1893, a correspondent
and 1892: says the insect was very abundant in potato last year. Was present but not abundant in 1891 and 1892 in the same place. Insect Life, 6: 276, 1894. (L. O. Howard.)

Brownsville, 1898: Larvae in the U. S. Natl. Museum, taken from egg-plant April 20, 1898.

Wharton, 1911: Letter to Bureau says there was a serious outbreak at Wharton, July 19, 1911, in the potato-growing area.

----- -----
A correspondent of the Bureau writes: "These pests threaten to destroy the greater part of seed potatoes in storage at Eagle Lake, July 27, 1912. (No specimens.)"

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A correspondent of the Bureau reports the insect on potato at Eagle Lake, July 3, 1913. (No specimens.)

Austin, 1913: Correspondent of Bureau sent specimens taken from potato, and asked for remedy, August 18, 1913. (Det. by F. H. Chittenden.)

TEXAS -- (Continued)

- Eagle Lake) ----- Specimens received from potato at Eagle Lake and
Hallettsville) Hallettsville. U. S. Farmers' Bul. 557, 1913.
(F. H. Chittenden.)
- E. G. Smyth writes to the Bureau on control work
of the insect in barreled potatoes at Eagle Lake,
December 18, 1917.
- Brownsville ----- Has been found mining the leaves of Physalis mollis
and Solanum elaeagnifolium at Brownsville. U. S.
Dept. Agr. Bul. 427, 1917. (J. E. Graf.)
- Colorado, Dallas, Counties of Colorado, Dallas, Lavaca and Travis
Lavaca, and Travis show the insect to be established on potato.
Counties: ----- U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)
- Industry, 1918: Specimens received from Austin County on potato,
July 20, 1918. (F. B. Paddock.)
- Matagorda County: ----- I remember that the insect has been found at
various points in the southwestern part of the
State, as far eastward as Matagorda County.
Most often found in stored potatoes. (R. E.
McDonald Aug. 31, 1929.)
- Fort Worth: ----- The only record in our office is one from Fort
Worth in an area where few potatoes are grown;
probably a result of potatoes being shipped in.
(F. L. Thomas, April 4, 1941.)
- We make an annual inspection of the lower Rio Grande
Valley potato-growing area and have no record of the
pest being found in that section since our survey
began. We found it in the Eagle Lake section.
(J. M. Del Curto, Oct. 21, 1941.)

UTAH

- Salt Lake City, 1913: Correspondent sent specimens to Bureau with state-
ment that many thousand bushels of potatoes in Salt
Lake City were rendered unsalable, November 1, 1913.
(Det. by F. H. Chittenden.)
- Cache County was mapped as a place of introduction,
but no establishment. U. S. Dept. Agr. Bul. 427,
1917. (J. E. Graf.)
- Beryl, 1926 -1932: Between the years 1926 and 1932, two reports were
received that this insect was present in Utah at
Beryl, in Iron County. During the spring of 1933,
additional verbal reports were received. (G. F.
Knowlton, Sept. 23, 1941.)

UTAH - (Continued)

- Specimens sent to the Bureau for determination,
from Salt Lake City, November 19, 1931.
- I received reports in 1933 that live tuber worms
had been found in potatoes in the Salt Lake market,
shipped from California. I examined potatoes from
California in 1931 or 1932. Reports that trucks
had also brought infested potatoes to the Provo,
Brigham, Logan, Ogden, and Richfield markets were
given to me during my inquiry. (G. F. Knowlton,
9-23-41.)
- Beryl, 1932: F. E. Stephens reports the occurrence of the insect
in one potato field at Beryl. (G. F. Knowlton
4-28-32.)
- Beaver, Iron, and Washington
Counties: ----- Three counties -- Washington, Iron, and Beaver --
are now quarantined because of the presence of the
moth. (G. F. Knowlton April 18, 1934.)
- Enterprise, 1934: Damage to potato leaves was noted on volunteer
potatoes at Enterprise, Washington County. (G. F.
Knowlton, July 1934.)
- General, 1936: Very little injury observed or reported in infested
section of Utah. (G. F. Knowlton, Oct. 10, 1936.)
Insect Pest Survey Bul. 16: 407, 1936.
- General, 1938: Injury very rare in the infested area in 1938.
(G. F. Knowlton, Dec. 3, 1938.)
- Numerous reports from farmers and county agents in
Beaver, Iron, and Washington Counties state that
they have seen no moths, larvae, or damage for about
5 years. (G. F. Knowlton, Feb. 23, 1940.)
- No reports of potato tuber moth infestation or injury
in Utah have reached me during 1940 and 1941. (G.
F. Knowlton, Sept. 20, 1941.)

VERMONT

- We have no record of the potato tuber worm in the
State. (H. L. Bailey, Oct. 1, 1941.)

VIRGINIA
Norfolk

- Eight specimens in U. S. Natl. Museum, collected
at Norfolk -- one on horsenettle, one on potato,
two on tobacco, and four on eggplant. No date
given.

VIRGINIA - (Continued)

- Pittsylvania County, 1898: In 1898 I found the insect mining tobacco leaves in Pittsylvania County. U. S. Dept. Agr. Year-book. 1898. (L. O. Howard.)
- Diamond Springs, 1909: Abundant on eggplant at Diamond Springs. C. H. Popenoe. (Det. by A. Busck.)
- Chatham, 1913: U. S. Natl. Museum collection of specimens. Chatham, three larvae on tobacco, August 29, 1913. (E. A. Runner.)
- Onley, 1923: At Onley, Accomac County, 26 larvae on potato, in U. S. Natl. Museum November 7, 1923. (W. H. White.)
- Onley, 1927: At Onley, 30 larvae in U. S. Natl. Museum, collected by H. S. Peters, August 1927. (No food plant given.)
- Among States listed in distribution. U. S. Dept. Agr. Bul. 59, 1914. (Morgan and S. E. Crumb.)
- Norfolk and Pittsylvania Counties: Pittsylvania and Norfolk Counties mapped as established on plants other than potato. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)
- Northampton County, 1923: The potato tuber moth has become established in Northampton County on the Eastern Shore of Virginia, November 5, 1923. (H. Spencer, 1923.)
- Nassawadox, Eastville, Norfolk, 1923: Larvae injuring potato were found September 28, 1923. Infested potatoes received from Eastville and Nassawadox, October 16-17, 1923. Several barrels of seed potatoes from Norfolk, in which larvae and pupae were present, were found. December 17, 1923. Va. Truck Expt. Sta. Bul. 53: 419, 1925. (H. Spencer and W. O. Strong.)
- Norfolk County, 1924: Wormy potatoes were found in the Western Branch section of Norfolk County, January 5, 1924. In 1924 worms had spread northward an average of about 15 miles and were much more numerous than they had been the previous year. In 1925 foliage was found infested May 8. Va. Truck Expt. Sta. Bul. 53: 419, 1925 (H. Spencer and W. O. Strong.)
- James City and New Kent Counties: --- Present in James City and New Kent Counties. Bureau Correspondence, October 20, 1925. (C. R. Kauffman.)

VIRGINIA - (Continued)

- Arlington ----- Noted on Datura metteri at Arlington. No date given. (F. W. Poos.)
- 1925: Noted as a pest in Virginia in 1925. Va. State Crop. Pest Com. Quart. Bul. 7: 4. (Sept. 11, 1926.)
- Northampton and Accomac Counties, 1925: There was a severe outbreak in the foliage of the fall crop of potato in 1925. Va. Polytech. Inst. Bul. 251, 1926.
- General ----- Since the insect was first found in abundance in 1923 it has been recorded repeatedly in the literature and in reports to the Insect Pest Survey. Recorded from these additional counties: Brunswick, Caroline, Dinwiddie, Greensville, King George, Lancaster, Mathews, Middlesex, Nansemond, and Richmond.
- Onley, Bowling Green, Richmond, (south side): ----- During investigations in 1926 and 1927 the pest was found at these places on tobacco. Va. Truck Expt. Sta. Bul. 61, 1927.
- Arlington Farm, 1928, 1929 and 1930: Only a trace found in tobacco in 1928 and 1929 at Arlington Farm. Many times more abundant in 1930 than in 1928 and 1929. Found in potato, tobacco, jimson weed, and Datura innoxia. (F. W. Poos, 1930.)
- Toano, Pungo, Fentress, 1933: Scarce in potato fields at Toano, Pungo, and Fentress. Infestations found only near packing sheds and outbuildings where potatoes were stored late last fall (1932). (C. R. Wiley, June 26, 1933.)
- ----- A great deal of careful scouting on the Eastern Shore failed to find a single worm. (H. G. Walker, July 26, 1934.)
- Norfolk, 1935: The worm is very scarce this spring. It has only been found in one field in the Norfolk area. (H. G. Walker, June 25, 1935.)
- Northampton, Accomac, Princess Anne Counties, 1935: More abundant in Princess Anne, Northampton, and Accomac Counties than last year. (C. R. Wiley, Dec. 18, 1935.)
- Arlington, 1937: Two adults were found at Arlington Farm. (F. W. Poos, Jan. 7, 1937.) (Det. by A. Busck.)

VIRGINIA - (Continued)

Eastern Shore, 1939:

Within the last few days reports of attack on barreled and sacked potatoes on the Eastern Shore have been numerous. (H. C. Donohoe, July 15, 1939.)

Eastern Shore, 1941:

Doing considerable damage to several potato fields on the Eastern Shore, October 1-2, 1941. (C. R. Willey.)

Eastern Shore, 1941:

The potato tuber moth caused very severe damage in many fields of potatoes on the Eastern Shore. At harvesttime many of the tubers an inch or more below the surface of the ground were infested. These potatoes were placed in storage and many barrels of potatoes were seriously damaged. (H. G. Walker, Nov. 12, 1941.)

WASHINGTON

Seattle, 1913:

Correspondent sent specimens from potato, and asked for remedy. Bureau correspondence July 31, 1913. (Det. by F. H. Chittenden.)

Auburn,
Seattle,
and Yakima: ----

The species on potato has been received from Auburn, Seattle, and Yakima. U. S. Farmers' Bul. 557, 1913. (F. H. Chittenden.)

We have had this pest reported in our State several times in the last 2 years and several carloads of infested potatoes have been destroyed. Bureau correspondence. (M. A. Yothers, Feb. 27, 1914.) (Det. by F. H. Chittenden.)

Seattle, 1915:

I can state positively that this moth attacks the stems of potato. Bureau correspondence. (J. J. Mathews, Feb. 8, 1915.) (Det. by F. H. Chittenden.)

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King and Yakima Counties are mapped as places where this insect was introduced but not established. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Ritzville, 1920:

Adult specimen in the U. S. Natl. Museum from Ritzville, Adams County, on July 1920. (R. C. Shannon.)

1941: Practically all of the potatoes in this State have been harvested, and with all the certification our department is doing, no infestation has been found. (F. E. DeSellen, 1941.)

WEST VIRGINIA

- Search of my records shows that the insect has not been recorded in the State. (L. M. Peairs, Dec. 4, 1930.)
- To the best of our knowledge, investigations in potato fields have never shown the presence of the insect. (F. W. Craig, Sept. 23, 1941.)
- 1941: I have often taken moths, which I assumed to be this species, at trap lights, but have never had the identification checked. So far as observations or complaints are concerned, there is little or no injury from the insect to potatoes. I have no record of the insect on tobacco. On several occasions have thought that I had found the insect in some of the ornamental forms of tobacco at Morgantown, but never succeeded in rearing the moths. The injury resembled very closely the descriptions of the work in ordinary tobacco. (L. M. Peairs, Sept. 30, 1941.)

WISCONSIN

- 1914: The tobacco splitworm was found in the State last summer. Wisc. Bul. 250: 30, 1915. (E. L. Russell, 1915.)
- Dane County ----- This county is mapped as a place where the species is established on plant other than potato. U. S. Dept. Agr. Bul. 427, 1917. (J.E. Graf.)
- S. B. Fracker, in February 1917, wrote to the Bureau for specimens from California to compare with specimens from Wisconsin.
- Dane, Jefferson, and Rock Counties, 1931: Many fields of tobacco in Wisconsin show injury by the splitworm for the first time in many years; some fields in Dane, Jefferson, and Rock Counties seriously damaged. Insect Pest Survey Bul. 11: 466, 1931. (E. L. Chambers.)
- 1933: The tobacco splitworm is again showing up in spots in southern Wisconsin. Insect Pest Survey Bul. 13: 209, 1933. (E. L. Chambers.)
- E. H. Searls says: "We studied the insect as the tobacco splitworm in 1931. We found 5.7 percent of the plants in nurseries infested on July 7. On July 10, 11.7 percent of the plants were rosetted as a result of splitworm injury." T.C. Allen notes: "To date we have no records or specimens of the potato tuber moth." C. L. Fluke states

WISCONSIN - (Continued)

"I am unable to find anything, but did not check all the departmental reports." (H. F. Wilson, Nov. 18, 1941.)

----- In going through our records, we find there was a trace of the tobacco splitworm each year from 1934 to 1938. Since that time we have had none reported by the growers; and specialists working with tobacco report that they rarely see it. (E. L. Chambers, Sept. 26, 1941.)

WYOMING

----- Insofar as I have been able to determine, this insect does not exist in the State. (R. T. Snipes, Sept. 24, 1941.)

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